Study Gist:

Study Title. Janus-ModSAF Interoperability Study

Purpose. Experiment IV of the Anti-Armor Advanced Technology Demonstration (A2ATD) required interoperability between Janus and ModSAF. This study addressed the issues required to approach interoperability between these two disparate combat models.

Main Assumptions.

- A level playing field may not be attainable but interoperability improvements can be made.
- The behaviors of ModSAF affect the outcome of any run regardless of the random number seed.
- Interaction between models is easy, relative to achieving interoperability.

Scope of Study and Limitations. We examined interoperability issues involving Janus and ModSAF operating in a Distributed Interactive Simulation (DIS) environment. To provide Janus with a DIS capability we created a separate cell adapter unit, which minimally impacted the operation of Janus.

This DIS compliant Janus system, known as JLink, was used in three of the five run configurations in Experiment IV. These JLink configurations included force-on-force scenarios with JLink vs. JLink, ModSAF (Red) vs. JLink (Blue), and JLink (Red) vs. ModSAF (Blue). Each configuration was composed of 51 entities composed of 11 different weapon systems on the Blue side with an 82 entity/9 system mix on the Red side. No other simulations were considered. Analysis was only conducted in the DIS environment.

Principal Findings. When combining both models in the same battle, analysts must carefully consider each simulation's terrain and internal algorithms. Significant algorithmic differences include: target acquisition, firing procedures, determination of hit probability, disengagement criteria, and assessment of a kill. To mitigate these differences changes were required in both the Janus and ModSAF models.

Impact of this Effort. This study exposed the complexity involved with integrating Janus and ModSAF or any combination of disparate simulations in a DIS environment. The development of JLink for this project paves the way for virtually unlimited applications of distributed Janus provided that all users understand the capabilities and limitations with respect to interoperability.

Quality of Contractor Performance. Contractor support from Rolands and Associates (R&A) was exceptional. R&A provided immediate and accurate response to all JLink connectivity issues code recommendations.

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DTIC. (DTIC number not yet assigned).

Personnel Briefed. Mr. Bauman, Director, TRAC.

Conference Presentations. DIS Workshop. Orlando, FL, August 1996.

Conference Proceedings. Conference addressed DIS enhancements, current uses, and interoperability issues.

Journal Publications. None currently.